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## **Oil Pollution and Eastern Obolo Human Ecology, 1957-2007 (pp. 136-151)**

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### **Abstract**

*Human ecology concerns the relationship between man and his environment (Onosode 1998). In the environment are other organisms of flora and fauna whose importance to human beings need not be overstated. The occurrence of oil pollution in the Eastern Obolo ecosystem did not only degrade the human values but also deny the people of other organisms used by them to maintain and promote their living. As a result, this paper is a study of how oil pollution damaged Eastern Obolo (Andoni) human ecology. The paper started with the causes which are the exploration and exploitation of petroleum for half a century. It also analyzes the processes of extracting crude oil through which pollution emanates. The adverse effects on the flora and fauna, traditional economies and social practices of the people are parts of the text of this essay. So also are its engendered poverty, food contamination and lack of security of human life. Others are the desecration of religious, cultural and historical centres, loss of potential archaeological sites, decay in social values, increase of social vices and the health hazards experienced in the area within the period under review.*

**Keywords:** *Economic-decline, environmental-degradation, hazards, poverty, social-vices, spillage.*

### **Introduction**

The Eastern Obolo (Andoni) people are a segment of the Obolo (Andoni) group that occupies the extreme corner of the Eastern Niger Delta. As such,

the Obolo (Andoni) are bounded by the Rio Real estuary in the west and the Cross River estuary in the east. On their north and south are the Ogoni, the Ibibio and the Atlantic Ocean. Because Eastern Obolo is located between the Imo and the Kwa Ibo rivers estuaries, our area of study is politically administered by the government of Akwa Ibom State of Nigeria. Their kinsfolk of Western Obolo are in the Rivers State with the Imo river estuary as the boundary point for Rivers and Akwa Ibom States.

A study by Fimsco Surveys (2002) confirmed that Eastern Obolo ecosystem was rich in biodiversity and wildlife population before oil exploration. The dense rain forest and the transitory nature of the mangroves and saline water environment made the area a breeding ground for various species of fish and other marine lives, animals and plants. When the ancestors of the Eastern Obolo people, led by Ede, migrated into the area from Western Obolo over 300 years ago, they met and enjoyed a functional environment of unpolluted air, unpolluted water and unpolluted land (Enemugwem 2000). Water and land provided the artery for their economic development and transportation while the air they breathe was full of life for a healthy living. The water-laced environment bisected by a labyrinth of creeks and rivers of the mangrove ecosystem made fishing, trading, and salt making from saline water the economies of the people. As soon as petroleum was discovered in 1957, Shell Petroleum Development Company (SPDC) established their oil fields. Later, Exxon Mobil and Elf, now Total, joined in the exploration and exploitation of the area. Their activities polluted the ecosystem.

### **Oil Pollution and the Ecosystem**

Pollution is said to be manmade. It is the use of substances that endanger the environment, plants and aquatic life as well as human health. It alters the physical environment and is not only detrimental to flora and fauna but also the entire ecosystem of the area (FEPA 1992). Eastern Obolo experienced it since the extraction of oil and gas five decades ago. The affected communities are categorized in Table 1.

The pollution from oil operations owed its occurrence in Eastern Obolo to four processes of extracting crude oil and gas from land and water. First is the seismic survey that initiates it. Being tract cutting and vegetation clearing for seismic shooting with dynamite, it was done with the construction of access routes, erection of camp sites, digging of burrow pits, movement of rigs and heavy equipment to the site for drilling (Udofia 2001). The

vibrations from it caused cracks in the Eastern Obolo houses and destroyed some buildings.

Second are the drilling operations which are not good either for our environment. The different types of rigs used to drill the exploratory wells in Eastern Obolo include drill ships and jack-up rigs. These rigs were able to drill thousand meters below ground level and ocean bottom. Coupled with land clearing, the removal of these rigs exposes Eastern Obolo soil to sheet erosion. Even the drilling mud which was mixed with chemicals became toxic waste that pollutes the ecosystem and exterminates plants and animals.

Third is the extraction of petroleum. Pipelines were laid from all the oil wells to the terminals of the oil firms. Owing to this fact, the area is crisscrossed with high pressure oil pipelines and other installations; some manifold ones carry the instructions, "DO NOT TOUCH". These installations pass through Eastern Obolo settlements and waterways with petroleum to the Bonny, Odudu and Qua Iboe Terminals of Shell, Total and Exxon-Mobil firms, respectively. As could be seen, this produced the toxic water and gas flaring at flow stations that polluted the Eastern Obolo environment.

The fourth method of oil exploration which caused pollution in the Eastern Obolo (Andoni) ecosystem is the issue of waste management. Another is the flaring of gas at the Utapate Flow Station and the Eastern Obolo coastline of the South Atlantic Sea. To Esara (1994), who studied the petroleum resources of Eastern Obolo, gas flaring brought the presence of oxides of nitrogen in the Eastern Obolo atmosphere and it came with acid rains. The flaring of gas here is done through horizontal pipes at ground level across the mangroves and shores of some Eastern Obolo communities of Iko, Okorombokho, Okoroiti and Okoroete Towns. This went directly into the human settlements as the nozzle of discharge of the flaring pipes points less than 250 metres from these settlements (Akwa Ibom State Government Address 1992).

The hazards of adopting this method has caused intense heat in the flora and fauna and brought about their mass destruction. It specifically gave severe corrosion to corrugated iron sheets used in roofing houses and turned them into sieves. Instances abound at Iko, Okorombokho, Okoroiti, Okoroete and most villages in the Local Government Area. Acid rains, too, reduces the life of buildings while gas flaring led to the destruction and degradation of the Eastern Obolo ecosystem. Hydrocarbon vapours, methane and soot emitted by gas flared in the area since 1959 also damaged this fragile ecosystem.

Adding to the above, it caused marine and gully erosion and silted up canals and estuaries.

Let us turn to how it silted up canals and estuaries in our research area. Prior to oil prospecting, there were four viable estuaries in Eastern Obolo that link the wide continental shelf. These estuaries were the mouths of the Imo, Obianga, Okwaan-Obolo and Okoroete-Iko rivers. Together with the canals and the creek routes, like the Okoroete-Ibeno route, they linked the area with their neighbouring communities. These coastal waterways to the South Atlantic Sea were the means of the sandy beach ridges, the inter-tidal muddy mangrove swamps and labyrinths of saline rivers that became the topography of Eastern Obolo. They also provided natural habitats to seafood. But today, these estuaries and canals are blocked due to the activities of the oil industries. It is not surprising that it leads to marine erosion. Hence, Eastern Obolo settlements and coastal banks are gradually eroding away. Instances are Okoroete Town, Elekokpoon, Emenoke I and II, Obianga, Ikonta and Iwofe (Ijaw National Congress 1996).

In fact, in 1997, both Mobil and the Nigerian National Petroleum Corporation (NNPC) jointly sponsored an Environmental Impact Assessment to ascertain the effect of the new Yoho Project on the host communities. Eastern Obolo was in the report as likely to be negatively impacted. In 1998, the same Mobil and NNPC engaged a firm, Unilag Consult, to assess the impact of their proposed expansion of the Qua Iboe Terminal. The report submitted mentioned Ibeno, Eastern Obolo and Mbo Local Government Areas on the Akwa Ibom State coastline as likely to have their flora and fauna retarded (FEPA 1998).

No sooner than the above projects were completed, the leakages of pipes and oil spillages from it and others rendered ponds, rivers, creeks and lands in Eastern Obolo polluted. In fact, the oil spillages of January 1998 and November 2000 were worse in our area of study. Thousands of barrels of Qua Iboe Light crude oil produced by Exxon Mobil were pumped into Eastern Obolo, Ibeno and Mbo Local Government Areas. Before then oil spills in the Niger Delta had been affecting Eastern Obolo (Andoni). For instance, the initial 360 spills in the 1970s released 1.426 million barrels of crude oil into the petroleum communities which Eastern Obolo is one. By 1982, a total of 1,581 oil spills was experienced in the region which also polluted the Eastern Obolo ecosystem and contributed to the following adverse effects (Enemugwem 2005).

### **The Adverse Effects in Eastern Obolo**

Taking the adverse effects into consideration, foremost is health hazard. Gas flare causes intense heat or physiological disorder. Acid rains from gas flaring causes heat rashes, respiratory problems, skin cancer and bronchial pains (Iyayi 1999). These and cholera outbreak occurred in Eastern Obolo between 1957 and 2007. The cholera outbreak owes its occurrence to pollution of streams which were the source of drinking water. Another is cancer and stroke that were virtually unknown in the area before oil exploration but became real due to incessant oil spillages. Ashton-Jones (1998) has shown below that the Niger Delta region, which Eastern Obolo is a part, is exposed to fourteen other diseases due to oil exploration. Table 2 shows his data.

The second impact noticed widely is poverty. It reminds us that in no way can humanity do without the natural resources of their environments. Worse of all is the negative impact of the petroleum industry on the flora and fauna of the Eastern Obolo mangrove ecosystem. Thus, oil pollution damaged the existence of viable plants and animals. Not the least is damaging the ecology of the coral reefs. In fact, all the rivers, creeks and the estuaries of the Imo, Obianga, Okwaan-Obolo and Iko that were promoting the Eastern Obolo mangrove ecosystem were polluted. See Table 3 below.

Their economies of fishing, farming and salt making are no longer yielding good harvest due to oil pollution that reduces fish catch per-effort. Ekong (1998) showed it on Table 4 below as what contaminates fish from Eastern Obolo coastal waters.

To get fish in recent times, the people go after the fishing trawlers in the deep sea, *kpokpoben*, and buy the rotten and smaller fishes as well as shrimp for sell. Although it now becomes their means of livelihood, going after it is dangerous. Almost on weekly basis, two or three out of five persons in speed boats lost their lives while trying to buy fish from trawlers. This placed Eastern Obolo (Andoni) under starvation as small quantities of seafood enter the rivers and creeks from the South Atlantic Ocean due to the silting up of the estuaries.

The poverty of Eastern Obolo people increases as they cannot farm either. The farmers experienced deforestation that leads to loss of food sources. Secondly crops planted in oil polluted grounds absorb the oil and get destroyed. Before oil exploration, the indigenous food plants that serviced the

economy and health of the people include bitter leaf, pepper, wild mango, cassava, plantain, cocoyam, water yam, three leaf yam and yam. Oral account of Chief Daniel Ichen emphasized that their absence, as well as fruits, spices and medicinal herbs, increased the people's poverty. Lack of timbers such as iroko, mahogany, iron wood and mangrove trees that had characterized the people's export trade but destroyed by the oil wastes also increased their poverty. Through this means, the people are denied of their hunting, carving and craft industries. Though it impoverished them, it also impoverished other Nigerians at the limits of the Eastern Delta Rivers and creeks whose economies were serviced through the Eastern Obolo long distance trade. This increased unemployment and youth restiveness, not only in our area of study but also in the neighbouring parts of the Niger Delta in general.

Coming to income distribution, the result of recent studies has revealed that few persons earn about US\$7.00 (~~N~~900.00) as their average daily income. The majority in Eastern Obolo earn between one and two dollars (N 130 & N260) daily as income which brought financial straits on the people. See Table 5 below:

The third adverse effects of the oil pollution in the Eastern Obolo ecosystem are food contamination and lack of security of life. According to Onosode (1998), food contamination comes from pathogens, cyanide toxicity, mycotoxins and hydrocarbon contamination of the crude oil industries. These accounted for short life span in our area of study. Hence, people migrate to Calabar, James Town, the Bakassi Peninsula and Rio del Rey in the Cameroons for safety. Others spread from Escravos to Badagry and the Lagos Lagoon fishing and trading. It is known that many of the fishermen displaced from the Bakassi Peninsula in the recent Nigeria-Cameroon conflict are Eastern Obolo migrants (Habor (2002).

So also is the desecration of their religious and historical centres and potential archaeological sites. Eastern Obolo Local Government Area that was rich in historical and cultural heritage is now impoverished due to oil fields and pipelines that traversed the area. Their early settlements and religious centres created many centuries ago on their migratory routes from Western Obolo (Andoni) to their present abodes have all been traversed by oil wells and pipelines. The eleven settlements outlined below were their shrines and burial grounds. Today it is "no go area" for the custodians of these cultural, historical and archaeological sites. They are now in the right of way of the oil fields and pipelines. This destroyed the religious shrines that

were in the land and creeks of Eastern Obolo. Today, the people cannot worship their gods and goddesses as usual. The decay in social values, increase in social vices, loss of cultural sites and relics are synonymous with Eastern Obolo. As a result, the community's social structure is threatened (Fimsco Resources (2002). See map.

Table 6 below shows the old settlement sites, the major custodians of cultural and archaeological grounds and their proximity to the petroleum industry. The major custodians of these cultural and archaeological sites hold them in trust for all who, by custom and tradition, have rights to them. Attah (2001) recorded that Government of Akwa Ibom State noticed the hunger and malnutrition oil pollution engendered in Eastern Obolo and conducted a pilot study in the State between 1999 and 2001. All the 14 children examined in Eastern Obolo showed signs of "Marasmus" as the major type of malnutrition in the area. See Table 6 below.

As a result of misery, the Eastern Obolo youths had earlier taken actions against the oil explorers. A segment of them from Iko Town protested on July 7, 1987 against Shell's destruction of the economic and cultural heritage of the people (Irem 1987). Their demonstration was meant to draw the attention of the officialdom to their plight. However, Shell's recourse to police action further devastated the people. More than 30 houses and unnumbered properties were burnt down at Iko Town. A corpse of the dead, Madam Enyina Ejioeto, awaiting burial was also burnt and women assaulted by the Nigeria Police. In April 2007, there was a conflict in our community of study that left many people dead. It owed its occurrence to the activities of the petroleum industry. These adverse effects are still to be perfectly addressed by the Federal Government of Nigeria.

## **Conclusion**

We have gone through the history of oil pollution in Eastern Obolo, and its enormous adverse effects on the people. This ranges from gas flaring to land degradation and soil fertility loss. Others include agricultural yield decline, unemployment, poverty and misery, biodiversity depletion, oil spillage, sewage and waste water discharge. Not the least are the incessant inter and intra community conflicts, decay in social values and vices, infrastructural decay and other things like loss of their traditional religion, cultural sites and relics. In conclusion, the people's only hope lies in a carefully planned

programme of sustainable economic and social development of Eastern Obolo (Andoni).

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**Table 1: Categorization of Affected Eastern Obolo Communities by Population Based on 1991 Census**

Community	Status/Role	Male	Female	Both	1996 Project
Iko	Host	1,201	1,108	2,309	
Okorombokho	Host	474	456	930	1,069
Okoroete	Host	1,212	1,335	2,547	2,903
Otunene	host	152	164	316	360
Elile	Pipeline Community	392	363	755	861
Amadaka	“	355	385	740	844
Olokponetekun	“	n.a	n.a	n.a	n.a
Amanwon	“	n.a	n.a	n.a	n.a
Aganzat	“	n.a	n.a	n.a	n.a
Emeremen	“	94	78	172	196
Kampa	“	164	179	343	391
Aganasa	“	n.a	n.a	n.a	n.a
Emeroke I		260	252	512	584
Emeroke II		244	248	492	561
Amazoba	“	n.a	n.a	n.a	n.a
Okoroinyong	“	183	213	396	451
Obianga	“	243	227	470	536
Ikonta	“	392	321	623	710
Iwofe	“	156	133	289	329

Source: Extracted from: National Population Commission 1992.

**Table 2: Health Complaints during Oil Spillage in 1996**

Symptoms/Diagnosis	Prevalence in Control	Prevalence in Exposure	Significance
Generally IU	7.3%	23.2%	Yes
Headache	12.0%	32.5%	Yes
Nausea	5.8%	12.6%	Yes
Vomiting	2.5%	2.8%	No
Diarrhea	4.5%	7.6%	Yes
Sore Eyes	4.9%	15.6%	Yes
Runny nose	11.3%	18.5%	Yes
Sore Throat	10.5%	26.5%	Yes
Cough	9.6%	19.1%	Yes
Itching skin	4.7%	10.4%	Yes
Skin Rash	2.9%	6.7%	Yes
Blisters	0.4%	1.1%	Yes
Short Breath	4.4%	10.4%	No
Weakness	12.7%	21.7%	Yes

Source: N. Ashton-Jones, *The Ecosystem of the Niger Delta* (Ibadan: Kraft Books, 1998):152-153.

**Table 3: Some Eastern Obolo Rivers, Creeks, and Fish Breeding Grounds Affected By Oil Pollution**

S/N	Affected Saline Area	S/N	Affected Saline Area	S/N	Affected Saline Area
1.	Eastern Obolo South Atlantic Coastline	21.	Emen Okubu	41.	Bennard's Creek
2.	Shooter Creek	22.	Emen Ntekwe	42.	Emen Usuun
3.	Okwaan Okoroinyong	23.	Emen Akasuk	43.	Okolo-ke-Ara
4.	Udutuzi	24.	Emen Utam	44.	Ekpitim Creek
5.	Okwaan—Obolo River	25.	Otuawazi	45.	Ichana Creek
6.	Okoroete Creek	26.	Emen Okwukwu	46.	Emen—Ewop
7.	Emen Gbungbung	27.	Emen Eteiza	47.	Okokong Ile
8.	Uwasa	28.	Isi Akpabum	48.	Okokong Iza
9.	Aka—Okwaan	29.	Emen Ufan	49.	Udumasuk
10.	Okwaan Efie	30.	Elekete Creek	50.	Ibot Okwaan Elile
11.	Emen Okokong	31.	Ugama	51.	Emenasuk Behlehem
12.	Okwaan Obianga	32.	Agan—Isiama	52.	Asuk Amauka
13.	Okoloidim	33.	Ibot—Inyaiko	53.	Asuk Ozubo
14.	Amankwu	34.	Samuel Spiritual Creek	54.	Asuk Amangbauji
15.	Okwaan Emenoke	35.	Egweile Creek	55.	Asuk Ayama
16.	Okwaan Emenemen	36.	Atasukmgbe Ground	56.	Asuk Ama—Nglass
17.	Okwaan Elile	37.	Unyeuko Creek	57.	Asuk Okorobilom
18.	Okwaan Amadaka	38.	Okoroiti Creek	58.	Asuk Ntitakuket
19.	Emen Utiak	39.	Emen Edenka	59.	Asuk Amadede
20.	Emen Otunene	40.	Utibiete Creek	60.	Okolo Otuile
61.	Okolo Ikpeibum	68.	Okolobeke	75.	Iyongibat Amauka
62.	Otobo Atabrikang	69.	Okolo Etiti—Iwofe	76.	Utibiizon

63.	Ubok Iko	70.	Okolo Asakwun	77.	Okolo Amanwon
64.	Okwaan Ntafit	71.	Inyongewe	78.	Otobo Isiukpokho
65.	Odidim Arawo	72.	Okolo Aganzat	79.	Isi Okwaan Ile
66.	Odidim Ikpokonte	73.	Udumokpoon	80.	Isi Okwaan Iza
67.	Ebon Okwaan— Obianga	74.	Isiakama Okoroinyong	81.	Okolo-ke-Eneile

Source: Eastern Obolo Council of Chiefs, “Appeal to Include and Consider Eastern Obolo Local Government Area in the Environmental Impact Assessment” (Okoroete Town: MSS, 1998), pp. 31-32.

Table 4: Some Heavy Metal Contaminants in Fish Samples from Five Coastal Sites in Eastern Obolo L.G.A. ( $\mu\text{G/G}$ )

PARAMETERS	Sampling Period DRY SEASON		WET SEASON	
	JANUARY	FEBRUARY	JUNE	JULY
Lead (Pb)	11.65	12.17	14.60	13.00
Cadmium(Cd)	ND	0.01	0.01	0.02
Copper(Cu)	1.50	1.75	1.25	1.50
Zinc(Zn)	0.80	0.33	0.30	0.56
Cobalt(Co)	0.98	8.00	7.80	8.50
Iron(Fe)	919.06	899.42	897.90	964.20
Nickel(Ni)	7.30	7.80	6.99	6.99
Vanadium(V)	0.50	0.49	6.40	0.40

ND= Not Detected

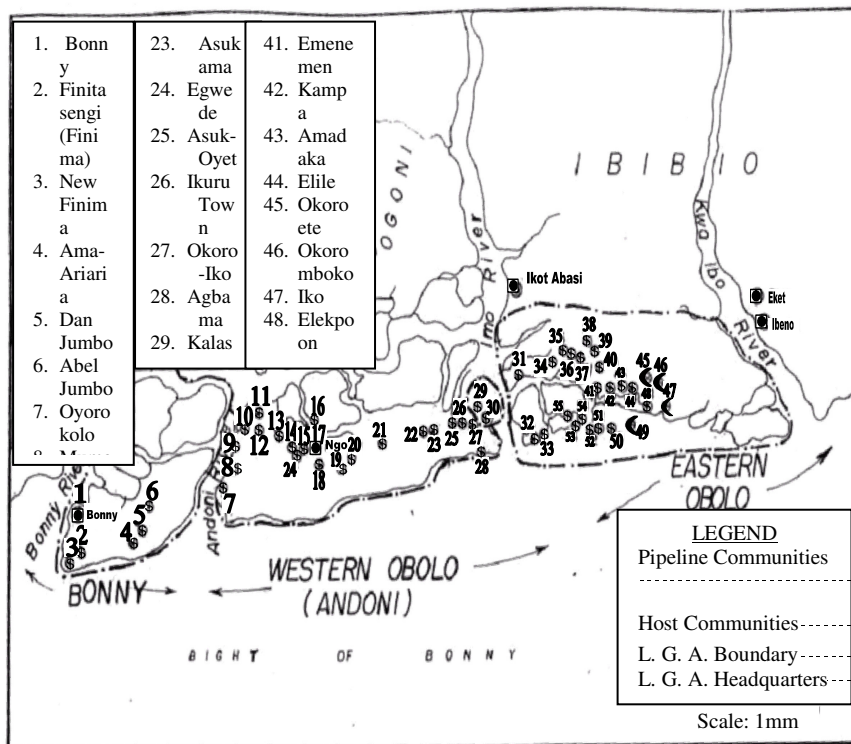
Source: C.A. Ekong, “Marine and Estuarine Oil Pollution in Iko area of Akwa Ibom State, Nigeria (Unpublished M.Sc. Thesis, Enugu State University of Science & Technology, 1998).

Table 5: Income Distribution in Eastern Obolo: Distribution of Population According To Daily Income of Respondents From Two Villages; Emenoke and Iko

Levels of Income Per Day	<u>Emerooke</u>		Iko	
	%	Freq	%	Freq.
Less than ₦ 100	3.28	7	2.18	3
101-200	3.58	5	3.93	7
201-300	1.90	5	1.76	7
301-400	0.18	1	0.20	1
401-500	1.91	3	1.63	8
501-600	1.62	9	1.88	2
601-700	0.81	2	0.49	4
701-800	0.93	1	0.60	4
801-900	0.04	0	0.006	3
901-1000	0.12	0	0.08	3
Total	14.37	33	12.756	42

Source: Fimsco Resources Field Surveys 2002.

Map of Obolo (Andoni) and Bonny Showing the Host and Oil Pipeline Communities



**Table 6: Potential Archaeological Sites in Eastern Obolo and Their Proximity to the Existing Right Of Way (Row)**

<b>S/NO</b>	<b>SITES</b>	<b>MAJOR CUSTODIANS</b>	<b>CULTURAL/ ARCHAEOLOGICAL RELEVANCE</b>	<b>PROXIMITY TO THE EXISTING ROW</b>
1.	Isi Okama Old Settlement Site	Okoroinyong Village	Shrines and burial ground	It is traversed by the existing ROW
2.	Emenemen old settlement sites	Emereoike Village	Shrines and burial ground	-do-
3.	Akpabum Village	Mbaja Family Okorombokho Village	Shrines and burial grounds	-do-
4.	Emen-Umaan old settlement site	Ede Royal Family Okoroete Town	Shrines and burial grounds	-do-
5.	Emen-Asuk old settlement site	Unyana Family, Okoroete and Uko Ukarayen Family Okorombokho	Shrines and burial grounds	-do-
6.	Ebon Okpoon old settlement site	Enwe (Okurube) Family at Okoroete	Shrines and burial grounds	-do-
7.	Okoloerereng old settlement site	Ufit Family of Okoroiti village	Burial grounds	-do-
8.	Elekokpoon Fishing village	Okoroete Town	Cultural/religious centre	-do-
9.	Owaji Nteuji Shrine	Emereoike	Cultural/religious centre	1km from ROW
10.	Isiebok Shrine	Emereoike	Cultural/religious centre	About 5m from ROW
11.	Okejja Shrine	Emereoike	Cultural/religious centre	1km from ROW

Source: Fimsco Resources Field Surveys 2002.

**Table 7: Summary of Total Pilot Case Studies Made by the Child Development Trust (CDT) of Akwa Ibom State, Nigeria (1999 – 2001)**

<b>S/No.</b>	<b>Local Govt. Area</b>	<b>Date</b>	<b>No. of Children</b>	<b>Major type of malnutrition seen</b>	<b>Outcome</b>
1	Ibesikpo Asutan	Oct 1999	10	m,k	9 Good, 1 died
2	Mbo	Feb 2000	11	m,k	Good
3	Abak	Feb 2000	11	m	Good
4	Eastern Obolo	Feb 2000	14	m	Good
5	Uruan	July 2000	16	m,k	Good
6	Ibeno	July 2000	15	m,k	Good
7	Ikot Ekpene	July 2000	25	m,k	Fair, 1 died
8	Uyo	July 2000	20	k	Fair
9	Esit Eket	Feb 2001	40	m,k	Good
10	Nsit Ubium	Feb 2001	40	m,k	Fair
11	Etim Ekpo	Feb 2001	40	m,k	Good
<b>TOTAL</b>			242 Children		

**M = Marasmus,**

**K = Kwashiokor**

*Source:* Alison Attah, "Effect of Oil Producing Activities of Child Health and Nutrition in Akwa Ibom State: The C.D.T. Experience (A Paper Presented at the World Conference of Mayors, Eket, July 15-20, 2001).